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derstanding in certain quarters, and M. de Fonvielle, a distinguished scientific journalist, has written to Lord Kelvin, congratulating him upon the 'failure of the atomic theories.' In reply Lord Kelvin expressed his regret at the misunderstanding, and goes on to say: "I do not allude in this passage to anything which I am in the habit of teaching either in my classes or in my published works. I am as much convinced as ever I was of the absolute truth of the kinetic theory of gases. All I know is I have not succeeded, in spite of fifty years of effort, in understanding more about the luminiferous ether or the manner in which it operates in regard to the electrical and magnetic forces. It is on this point I remain as ignorant as I was fifty-five years ago, when I first became convinced that the ether operated essentially in all these actions."

PROF. H. F. OSBORN has contributed to the September number of *The Century* an account of 'Prehistoric Quadrupeds of the Rockies,' well calculated to impress on the reader the interest and importance of paleontological research. The American Museum of Natural History has collections of great value, gathered by Prof. Osborn, Dr. Wortman and others, and under their direction Mr. Charles Knight has prepared a series of water-color drawings designed to give an idea of the appearance of the extinct animals in their natural surroundings. These were exhibited last winter at the reception of the New York Academy of Sciences and are undoubtedly the most life-like reproductions hitherto executed. Nine of the drawings have been reproduced on a large scale, and accompany Prof. Osborn's article in *The Century*.

M. DELEBECQUE has communicated to the Paris Academy a description and explanation, by M. Forel of Lausanne, of the phenomena known as the *Fata Morgana*. These have long been observed at the Straits of Messina and have been described by Humboldt and others. The phenomena consist in an apparently great enlargement, in a vertical direction, of the rocks, buildings, etc., on the opposite side of a lake or strait. M. Forel finds that it is not a real enlargement, but a number of different images,

some erect and some reversed, and attributes it to complex mirage.

WE regret having printed a note in the last issue of this JOURNAL in which it was assumed that an article by President Jordan in the September number of *Appleton's Popular Science Monthly* might have been intended seriously. It is a satire on 'impressionist physics,' and ought to be so recognized by every one, even apart from the signature of President Jordan. It is, however, impossible to parody, other than by republication, much that has been written on this subject, and President Jordan will probably receive letters asking for admission to the 'Alcade Camera Club.'

#### UNIVERSITY AND EDUCATIONAL NEWS.

By the will of the late Martin Brimmer, of Boston, Harvard University will receive \$50,000 on the death of his widow.

THE six buildings of the New York State Veterinary College of Cornell University have been completed and the laboratories and museums are being fitted up.

By private gifts, a Japanese fellowship in economics has been established at the University of Wisconsin, and Mr. M. Shiozawa, of Tokyo, Japan, has been elected to the fellowship for the coming year. A second fellowship in economics has been arranged for 1896-97 only, to be held by a graduate of Rockford College, and Miss Mary A. Salvin has been elected to the fellowship.

THE forty-third report of the Department of Science and Art of the Committee of Council of Education of Great Britain shows that the expenditure of the Department was £745,470 for the year 1895. Of this amount over £150,000 was in direct payments to encourage instruction in science. The number of visitors during 1895 was 1,040,628 at South Kensington and 355,248 at Bethnal-green, a decrease of more than a quarter of a million from the year before.

GEORGE T. WINSTON, President of the University of North Carolina, has been elected President of the University of Texas.

PROF. NATHANIEL SCHMIDT, of Colgate University, has been appointed to the new chair of Semitic language and literature, recently en-

dowed by Mr. Henry W. Sage in Cornell University.

DR. FRANZ HOFMEISTER, professor of pharmacology at Prague, known for his researches in physiological chemistry, has been called to the chair at Strasburg, vacant by the death of the late Prof. Hoppe-Segler.

PROF. F. F. JERISMAN has resigned the chair of hygiene in the University of Moscow.

#### DISCUSSION AND CORRESPONDENCE.

##### THE LICK REVIEW OF 'MARS.'

HAVING sought to throw discredit on Mr. Lowell's work, almost before it was begun, some two years ago, the Lick Observatory now renews the attack in Prof. Campbell's review of Mr. Lowell's book. Formerly it decried the work because the theories upon which it was started were too original; now it attempts to seize the credit of the results and calls the theories 'mostly old.' Such a remarkable act of appropriation cannot be allowed to pass unnoticed.

In order to unmask at once the character of the article, we will take first the two points in which the writer sums himself up.

1. Prof. Campbell asserts that of the two leading faults of the book, one is: 'that there should be so many evidences of apparent lack of familiarity with the literature of the subject' on Mr. Lowell's part; and he introduces, quotations at great length from a translation by Prof. W. H. Pickering, of Schiaparelli's work, to which translation he professes his obligation. Of this it is only necessary for us to say that the translation in question was made at the Lowell Observatory, a fact which Prof. Campbell neglects to mention, although the fact was so printed on the paper from which he quotes. We are willing to have the Lick indebted to us for its knowledge of Schiaparelli's work, but it must not suppose us ignorant of our own translation to which its knowledge is due. As the public could not have been expected to know whose the translation was, while we, on the other hand, could not have failed to do so, we are in doubt whether to wonder most at the simplicity or the bare-facedness of such a proceeding.

2. The writer asserts, as the other fault, that

the observations were not continued long enough to support the conclusion of seasonal changes on the planet. If he will read again our translation of Schiaparelli he will find that that eminent observer has noticed seasonal changes for years and that what our observations disclosed was not only the fact of changes, which they corroborated, but the character of the changes and the process of their development, thus furnishing an important link in the chain of evidence for Mr. Lowell's theory.

3. With regard to the literature of Mars contributed by the Lick and referred to in the article the succeeding points will show whether that literature was unknown to Mr. Lowell or whether its unimportance made mention of it unnecessary.

4. We will begin with the Lick attempt to claim the discovery of canals in the dark regions for Prof. Schaeberle in 1892, because the latter saw 'streaks' there then. Not only did Prof. W. H. Pickering and Mr. Douglass discover these same 'streaks' at Arequipa, of which fact the writer of the article is apparently ignorant, but Mr. Douglass' discovery, at Flagstaff, in 1894, was not of 'streaks,' but of canals, in the technical sense in which that word is used for Mars; and it is to the detection of these 'canal' peculiarities that the importance of the discovery is due, since it is these peculiarities that impart an artificial appearance to the entire system of canals. The difference between 'streaks' and 'canals' in the dark regions is of exactly the same kind as the difference between the streaks seen in the light areas by Madler, Dawes, Kaiser and others, prior to Schiaparelli's discovery of them as 'canals.'

5. The North Polar Sea was seen by Schiaparelli; the South Polar Sea has been drawn by many previous observers, but not recognized as such. Its limits and the proof of its character are due to Prof. Pickering's polariscope observations at this observatory. Its function in the climatology of Mars was first thoroughly discussed by Mr. Lowell in his book, and this is the precise meaning of his words, 'never distinctly noted or commented on before.'

6. The Lick article asserts that the first irregularity on the terminator was seen at the Lick Observatory, in 1890, but it omits to mention